ABSTRACT

A digital image acquisition and processing system that automatically corrects dust artifact regions within acquired images by compiling a statistical dust map from multiple images acquired under different image acquisition conditions is provided. The system includes a digital camera and an external processing device. The camera includes an optical system for acquiring an image including a lens assembly and an aperture stop, and an electronic sensor array disposed approximately at an image focal plane of the optical system for collecting image data according to spectral information associated with multiple pixels that collectively correspond to the image. The external processing device couples with the digital camera to receive the image data or converted image data internally processed within the digital camera. The external device includes digital processing electronics including a processor for processing the image data according to programming instructions. The system includes one or more memories having programming instructions stored therein for performing a method of automatic image correction of dust defect regions.